

Washington's State-Managed Natural Areas: *Capturing Plant Diversity in a Network of Small Sites*



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State-Managed Natural Areas

Department of Natural Resources

- **Natural Area Preserves (NAP)**
- **Natural Resources Conservation Areas (NRCA)**

- **90 sites statewide**



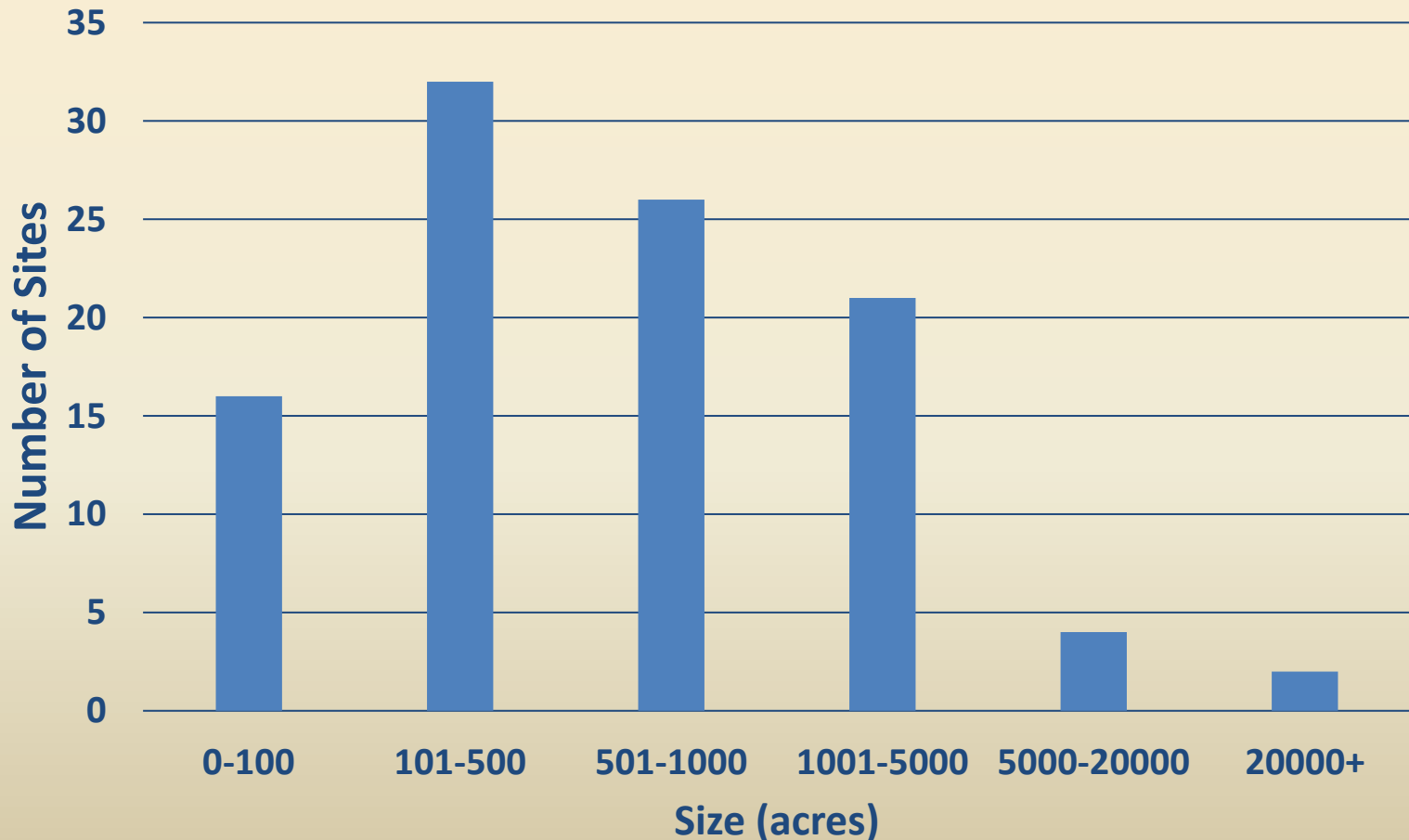


Exceptional Places

Quality examples of Washington's unique grasslands, woodlands, wetlands and rivers are protected in natural areas managed by the Department of Natural Resources (DNR). These special areas offer opportunities for research and education. Some have interpretive or recreation trails. Others require DNR permission to visit because habitats are sensitive to human disturbance.

For more information
contact the DNR
Natural Areas Program
PO Box 43014
Olympia, WA 98504-7614
360-962-1400
TDD: 711
dnr.wa.gov

- **Total Area: 165,850 (0.4% of WA State)**
- **Range: 5 – 38,000 acres**
- **Average: 1,842 acres**
- **Median: 432 acres**
- **70% are <1,000 acres**



Ecologically Diverse



65 of 92 Ecological Systems

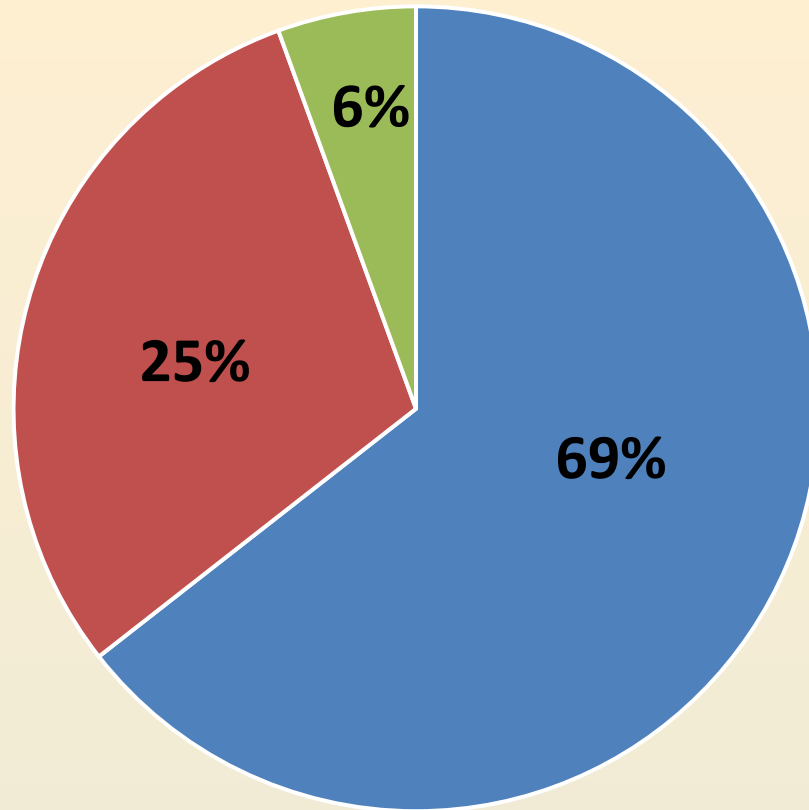
Columbia Basin Foothill and Canyon Dry Grassland	North Pacific Montane Shrubland
Columbia Basin Foothill Riparian Woodland and Shrubland	North Pacific Mountain Hemlock Forest
Columbia Basin Palouse Prairie	North Pacific Oak Woodland
Columbia Plateau Scabland Shrubland	North Pacific Serpentine Barren
Columbia Plateau Vernal Pool & Modoc Basalt Vernal Pool	North Pacific Shrub Swamp
East Cascades Mesic Montane Mixed-Conifer Forest and Woodland	Northern Rocky Mountain Conifer Swamp
East Cascades Oak-Ponderosa Pine Forest and Woodland	Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest
Inter-Mountain Basins Big Sagebrush Steppe	Northern Rocky Mountain Foothill Conifer Wooded Steppe
Inter-Mountain Basins Montane Sagebrush Steppe	Northern Rocky Mountain Mesic Montane Mixed Conifer Forest
North American Arid West Emergent Marsh	Northern Rocky Mountain Montane-Foothill Deciduous Shrubland
North Pacific Alpine and Subalpine Bedrock and Scree	Northern Rocky Mountain Ponderosa Pine Woodland and Savanna
North Pacific Avalanche Chute Shrubland	Northern Rocky Mountain Subalpine Woodland and Parkland
North Pacific Bog and Fen	Northern Rocky Mountain Subalpine-Upper Montane Grassland
North Pacific Broadleaf Landslide Forest and Shrubland	Rocky Mountain Alpine-Montane Wet Meadow
North Pacific Coastal Cliff and Bluff	Rocky Mountain Aspen Forest and Woodland
North Pacific Dry and Mesic Alpine Dwarf-Shrubland, Fell-Field and Meadow	Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland
North Pacific Dry Douglas-fir Forest and Woodland	Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland
North Pacific Dry-Mesic Silver Fir-Western Hemlock-Douglas-fir Forest	Rocky Mountain Subalpine-Montane Fen
North Pacific Hardwood-Conifer Swamp	Rocky Mountain Subalpine-Montane Riparian Shrubland
North Pacific Herbaceous Bald and Bluff	Rocky Mountain Subalpine-Montane Riparian Woodland
North Pacific Hypermaritime Shrub and Herbaceous Headland	Temperate Pacific Freshwater Aquatic Bed
North Pacific Hypermaritime Sitka Spruce Forest	Temperate Pacific Freshwater Emergent Marsh
North Pacific Hypermaritime Western Red-cedar-Western Hemlock Forest	Temperate Pacific Intertidal Flat
North Pacific Intertidal Freshwater Wetland	Temperate Pacific Subalpine-Montane Wet Meadow
North Pacific Lowland Riparian Forest and Shrubland	Temperate Pacific Tidal Salt and Brackish Marsh
North Pacific Maritime Coastal Sand Dune and Strand	Willamette Valley Upland Prairie and Savanna
North Pacific Maritime Dry-Mesic Douglas-fir-Western Hemlock Forest	Willamette Valley Wet Prairie
North Pacific Maritime Eelgrass Bed	Rocky Mountain Lodgepole Pine Forest S3S4
North Pacific Maritime Mesic Subalpine Parkland	Rocky Mountain Subalpine-Montane Mesic Meadow S3S5
North Pacific Maritime Mesic-Wet Douglas-fir-Western Hemlock Forest	North Pacific Montane Massive Bedrock, Cliff and Talus S4S5
North Pacific Mesic Western Hemlock-Silver Fir Forest	Rocky Mountain Cliff, Canyon and Massive Bedrock S4S5
North Pacific Montane Riparian Woodland and Shrubland	

Natural Area Site Selection

- Natural Heritage Program
 - “Element Occurrences”
- Coarse filter/Fine filter approach
 - Coarse Filter
 - Ecosystems/Plant communities
 - Fine Filter
 - Rare plants
 - Rare animals





Ranunculus reconditus



■ Ecosystems ■ Ecosystems & Rare Taxa ■ Rara Taxa

...How effective has this been at capturing native plant taxa?

Methods

- Master list compiled from:
 - Site species lists (60)
 - 1985 – present (most updated since then)
 - Reputable sources
 - Monitoring data (3)
 - Herbarium records (1)
 - Rare plant records
- Updated taxonomy/nomenclature
 - Washington Flora Checklist Name Checker  
- Conservative approach
 - Questionable identifications not included
 - Assigning identity, e.g. varieties/subspecies

Results

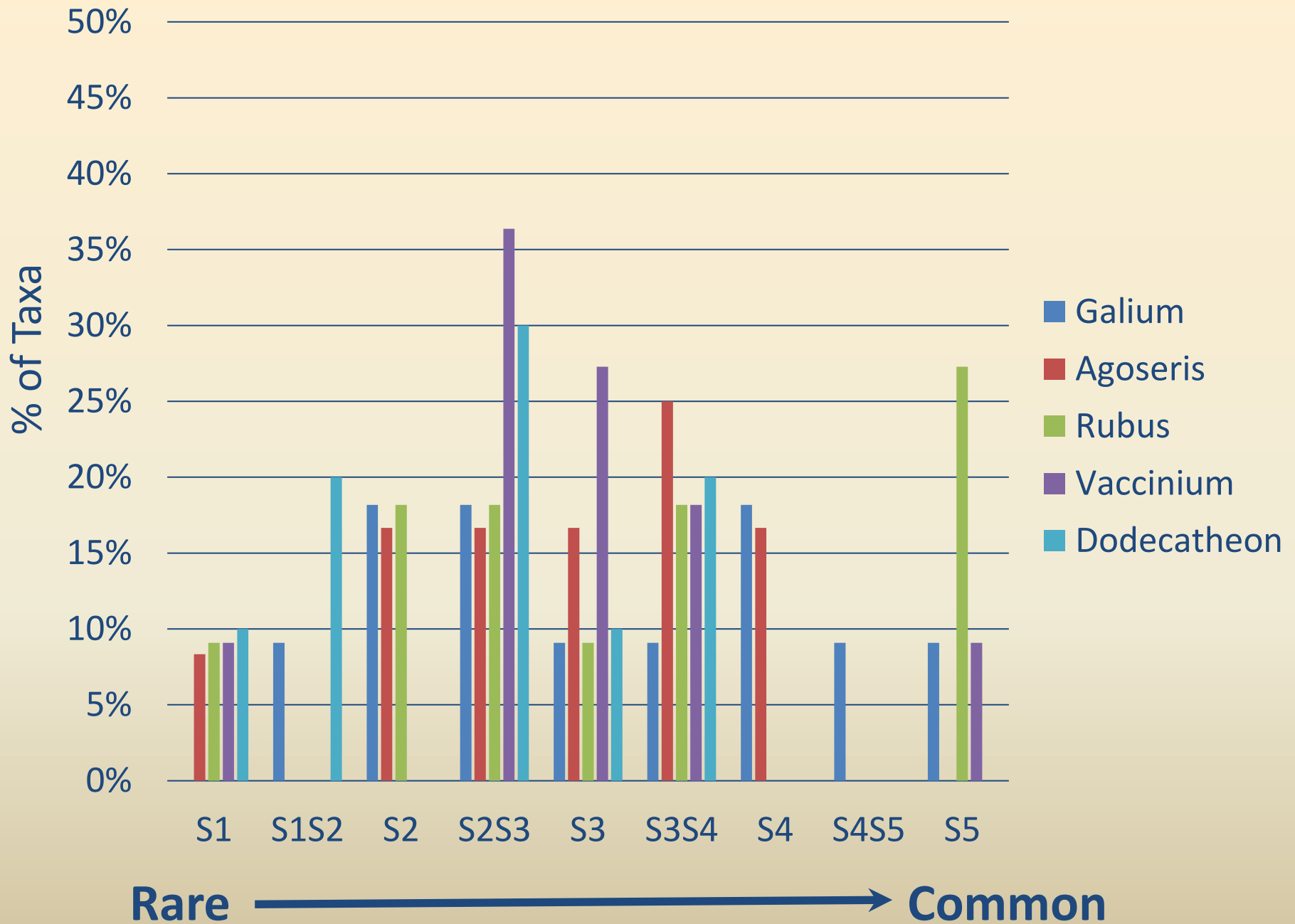
	WA Natural Areas	All of WA State	Proportion in Natural Areas
Native Taxa	1,506	2,634	57%
Native Genera	501	649	77%
Native Families	118	129	91%
Land Area (Ac.)	69,918	42,612,480	0.20%

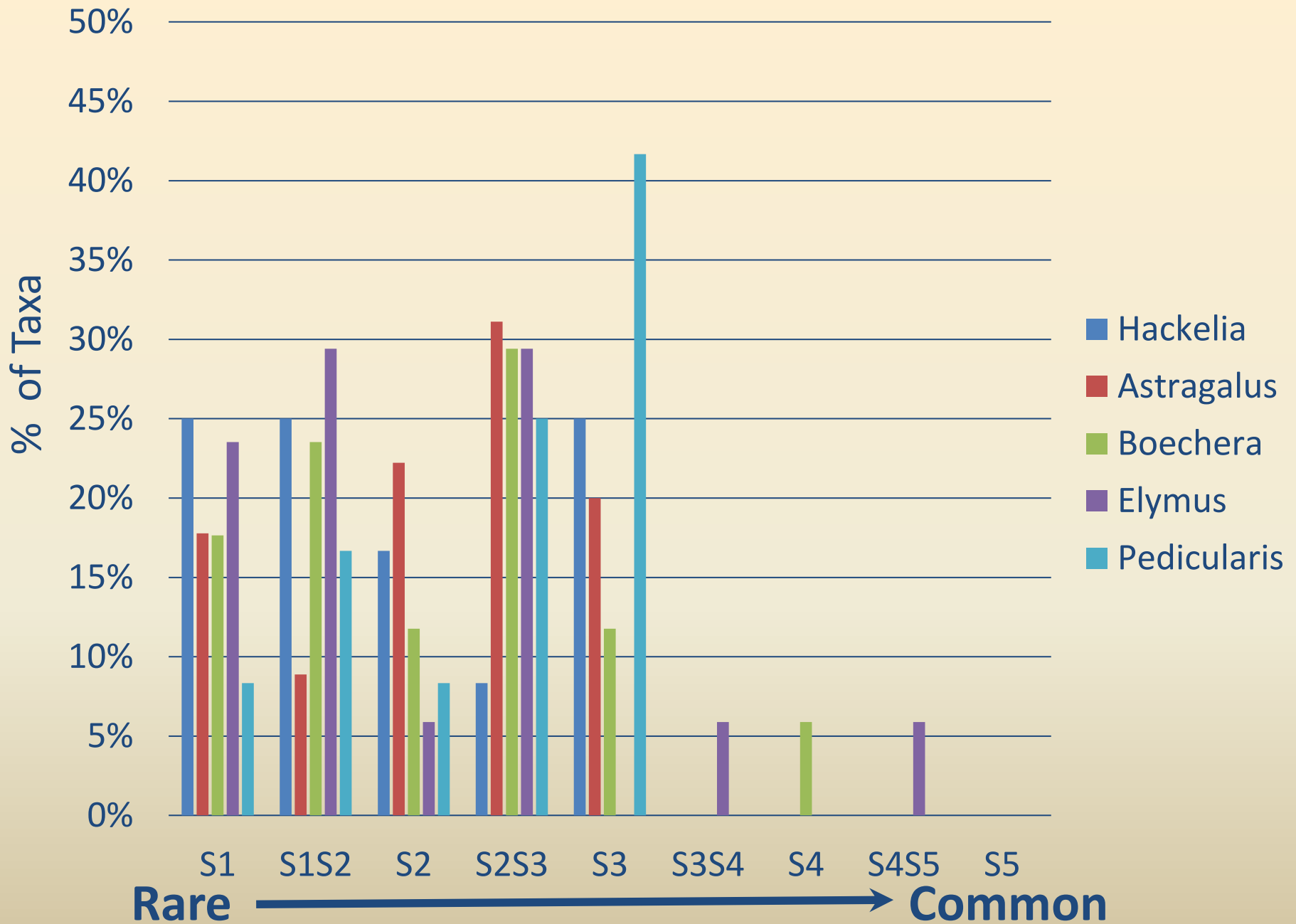
Other Protected Areas

	Land Area (Ac.)	Native Taxa
Smokey Mts. NP	521,085	1,700
Sequoia/Kings NP	865,952	1,550
DNR Natural Areas	69,918	1,506
Olympic NP	366,000	1,450
North Dakota	45,287,680	1,254
Yellowstone NP	2,221,766	1,160
Mt. Rainier NP	235,625	890
Everglades NP	1,500,000	789

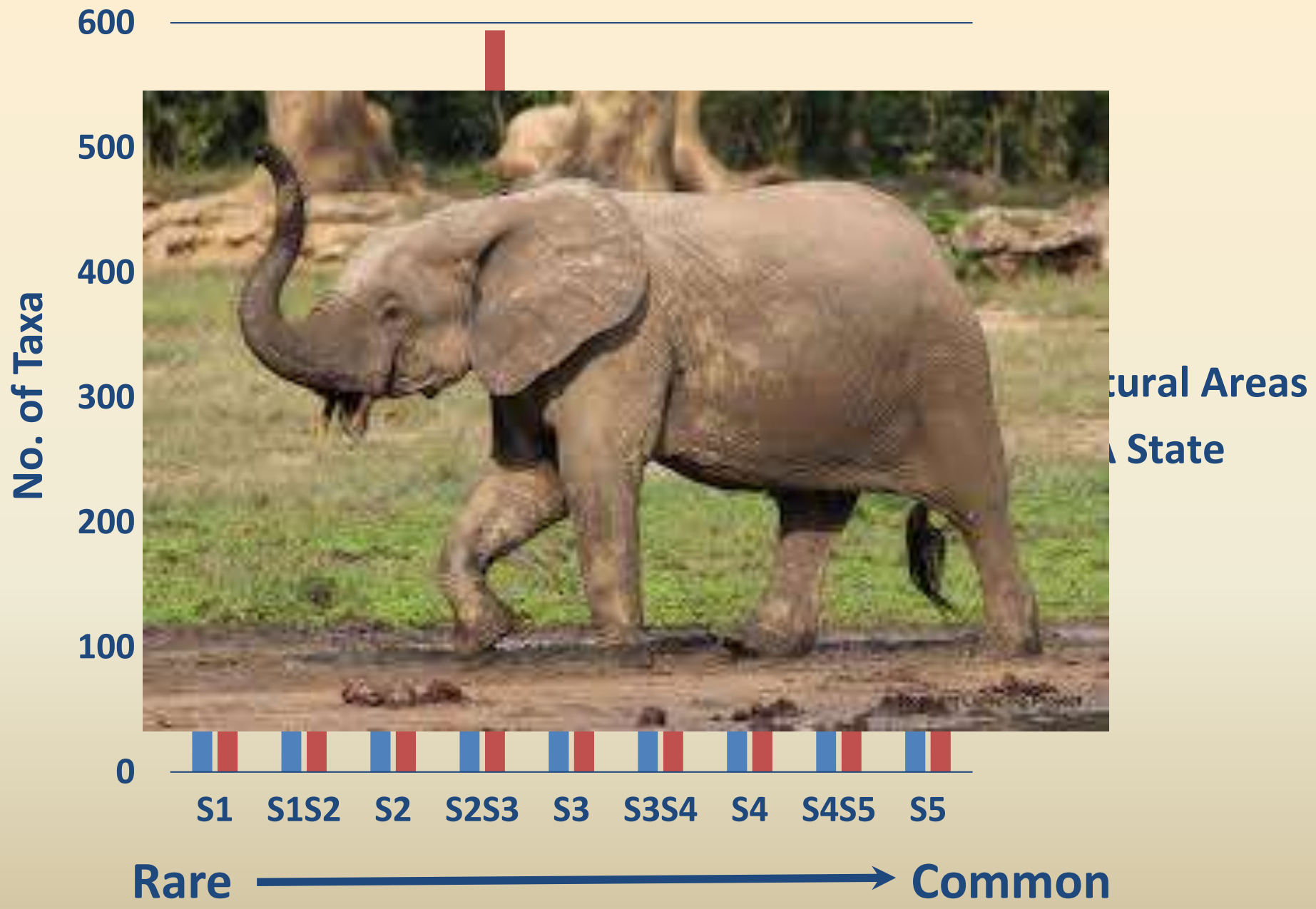
Representation within Genera

Genus	Taxa on WA Natural Areas	WA State Taxa	Proportion in Natural Areas
<i>Galium</i>	10	10	100%
<i>Agoseris</i>	10	11	91%
<i>Rubus</i>	9	11	82%
<i>Vaccinium</i>	9	11	82%
<i>Dodecatheon</i>	8	10	80%
<i>Hackelia</i>	4	12	33%
<i>Astragalus</i>	15	48	31%
<i>Boechera</i>	6	20	30%
<i>Elymus</i>	5	18	28%
<i>Pedicularis</i>	3	13	23%





Taxa by Abundance



Geographic & Ecological System Gaps

- Southeast portion of state
 - Blue Mountains
 - Palouse
- Central Columbia Basin
- High elevation/alpine



Conclusions

- High level of diversity on small land area
- Site selection approach effective at capturing vascular flora, especially more common taxa
- Potential gaps identified
 - Localized, rare taxa
 - Palouse, Blue Mts, Central Basin, High elevation
- Future Needs
 - Assess flora network-wide
 - More site inventory



Thank you!

